

Region 9 San Juan River

Data Summary August 2015

Observations

- Results highly variable but clear peaks and subsequent downward trends observed, some anomalies.
- Concentrations of most metals consistent with pre-impact concentrations when compared to pre-event data
- Currently, total lead and dissolved Al may exceed NN livestock and agricultural supply screening levels on given days
- Exceedences may result from confounding factors such as storms and flows from contaminated washes
- R9 calculating Background Threshold Values for metals in NNEPA data set

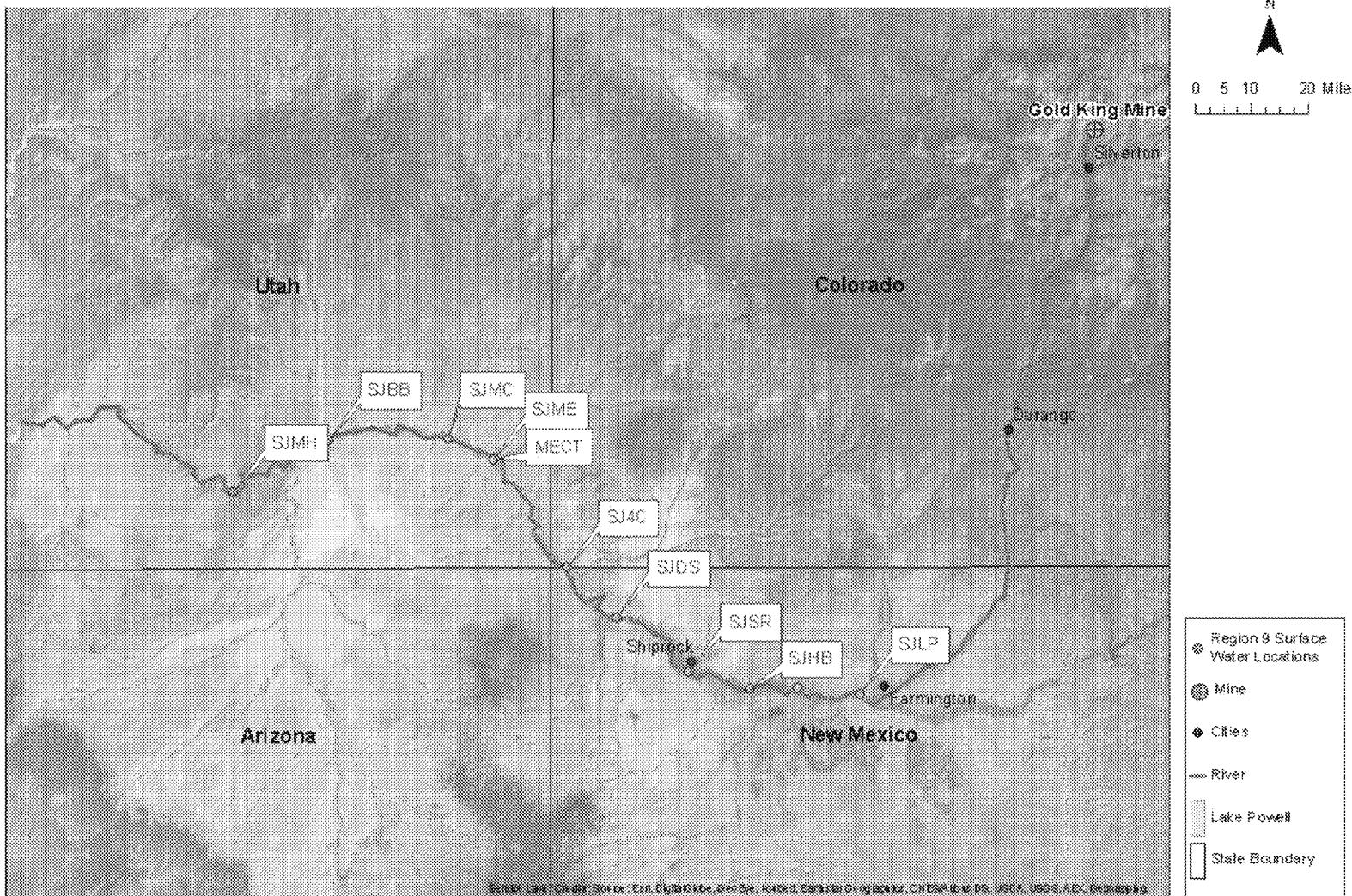
Pre-event Data Set

- Dissolved and Total metal concentrations from the San Juan River Sep 2011 – Sep 2013 used to estimate pre-event conditions
- Data collected by NNEPA and provided as part of the Navajo Generating Station permit application. Includes SW results only (no sediment).
- Total lead data ranged from ND – 330 ug/l,
 - NN Ag Screening Level: 100 ug/l
- Total aluminum ranged from 14 – 150,000 ug/l
- Dissolved aluminum ranged from ND – 4,300 ug/l,
 - NN Ag Screening level: 5,000 ug/l

Pre-event conditions

- Dissolved Aluminum and diss Iron are best predictors of the plume
 - peak on 8/11 at 4C – four corners
- Max Lead (total) result in this event was 180 ug/l (six background results at 200 or greater)
- Lead Peaks prior to expected/measured plume front on 8/11 at 4C
 - Reasons unknown but phenomenon occurred in UT data collected near 4 corners
- Max Aluminum (total) result for this event 210,000 ug/l at MH
 - Seems to have occurred *before* the plume reached MH on 8/11 (approx 70 river miles ahead of predicted plume front);
 - DS also above 150,000 *after* the plume passed that station
- Max Al (diss) result for this event 82,000 on 8/13 at DS after the plume passed returning to ND (16th and 17th) one exceedance on 8/17, 17,000 at MH

Site Map for Gold King Mine Release

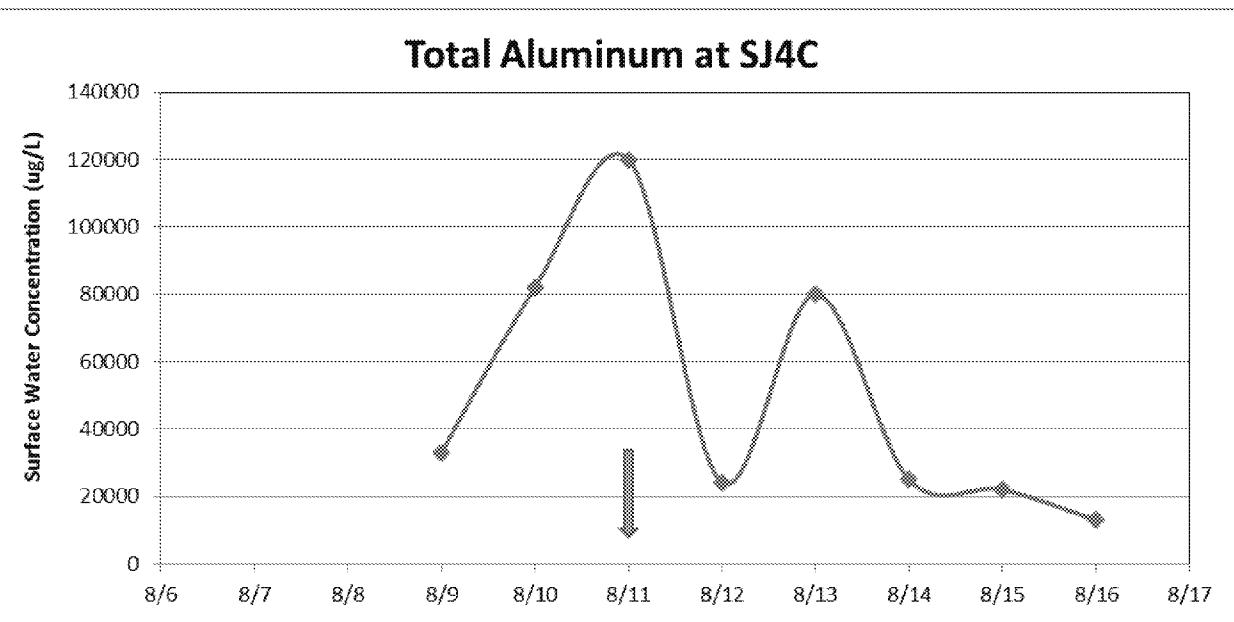


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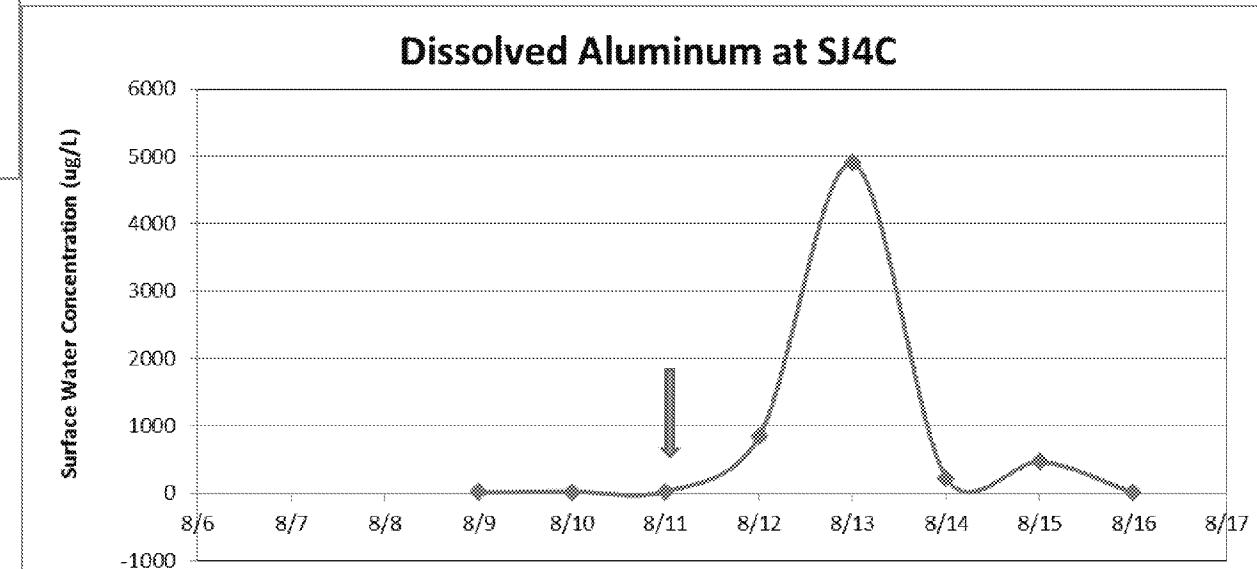
Total & Diss Al at the Four Corners Sampling Station



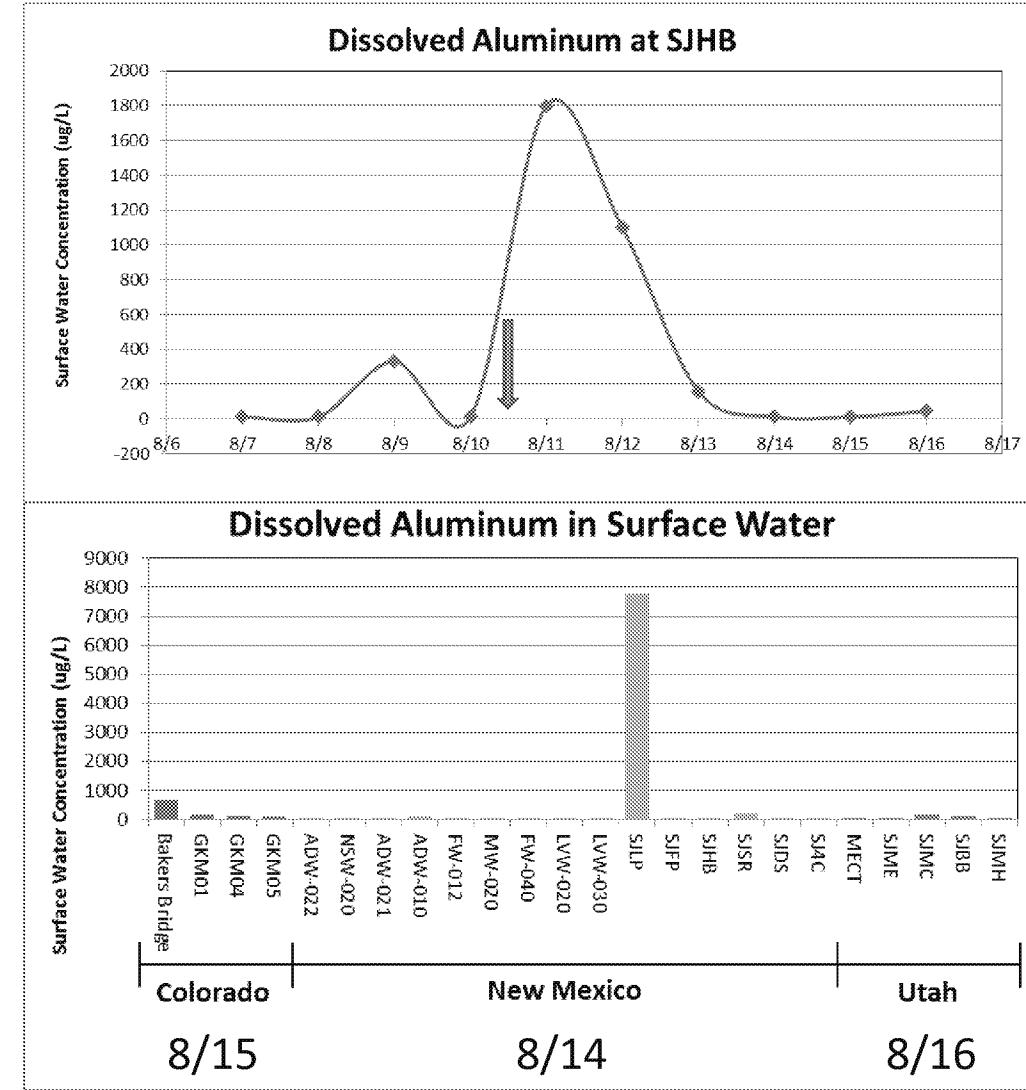
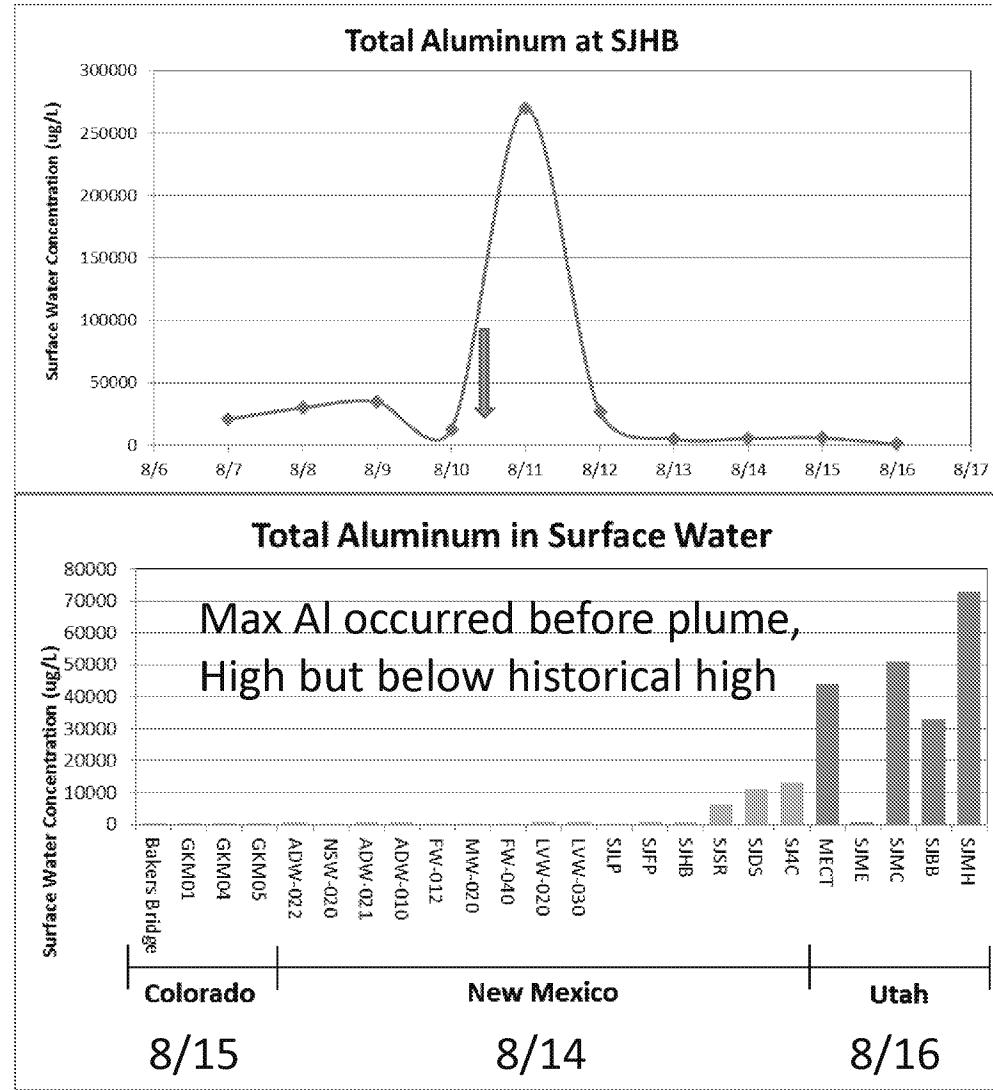
Total peaks at this location between 8/10 & 8/13
Dissolved peaks between 8/11-13
Levels remain comparable to 8/15 & 16 on 8/17 & 18
for both total (8600 – 5900 ug/l) & diss (240-1300 ug/l)

Blue arrow indicates estimated date of plume front at given location

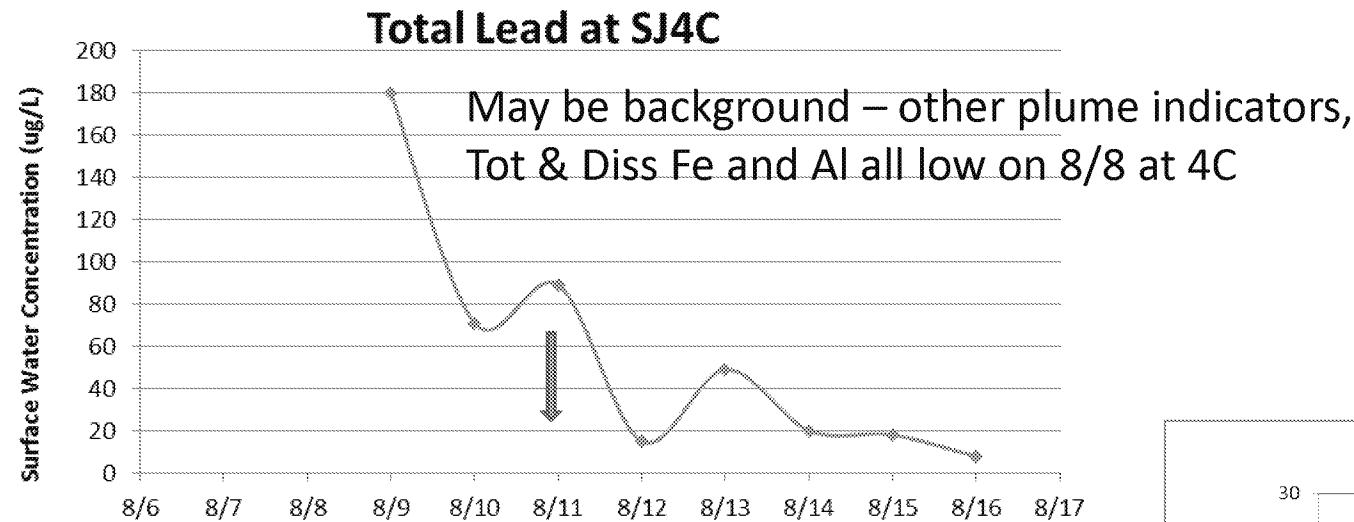
Total present in turbid waters, perhaps 1st front, dissolved may follow



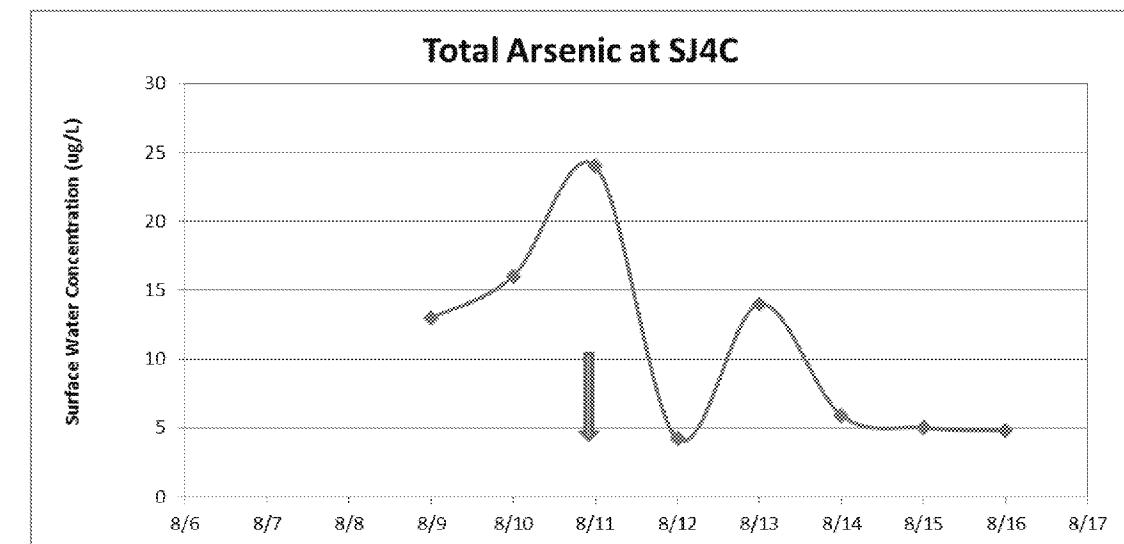
Al at upstream stations (Hogback)



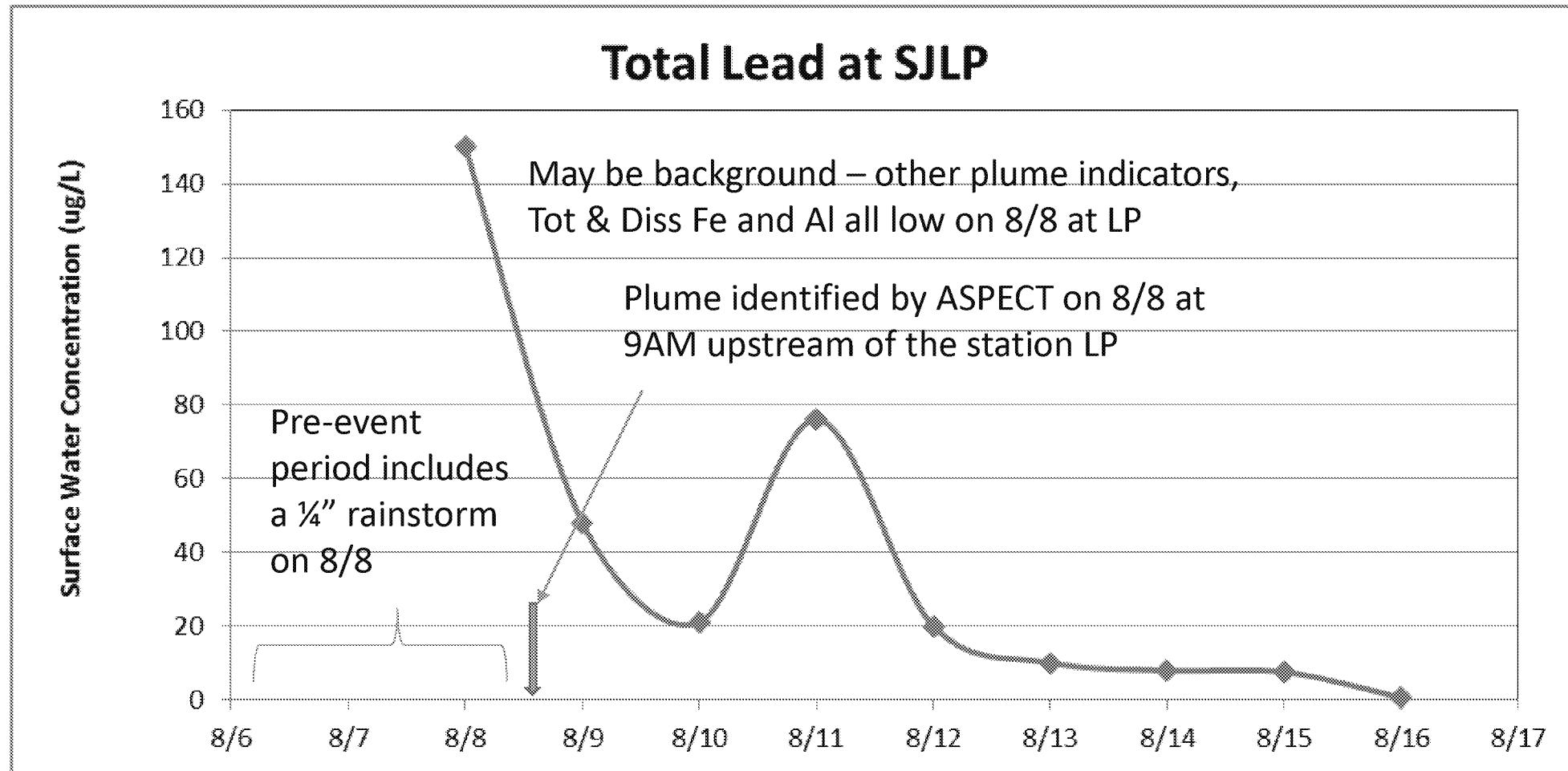
Total Lead & As at Four Corners Sampling Station



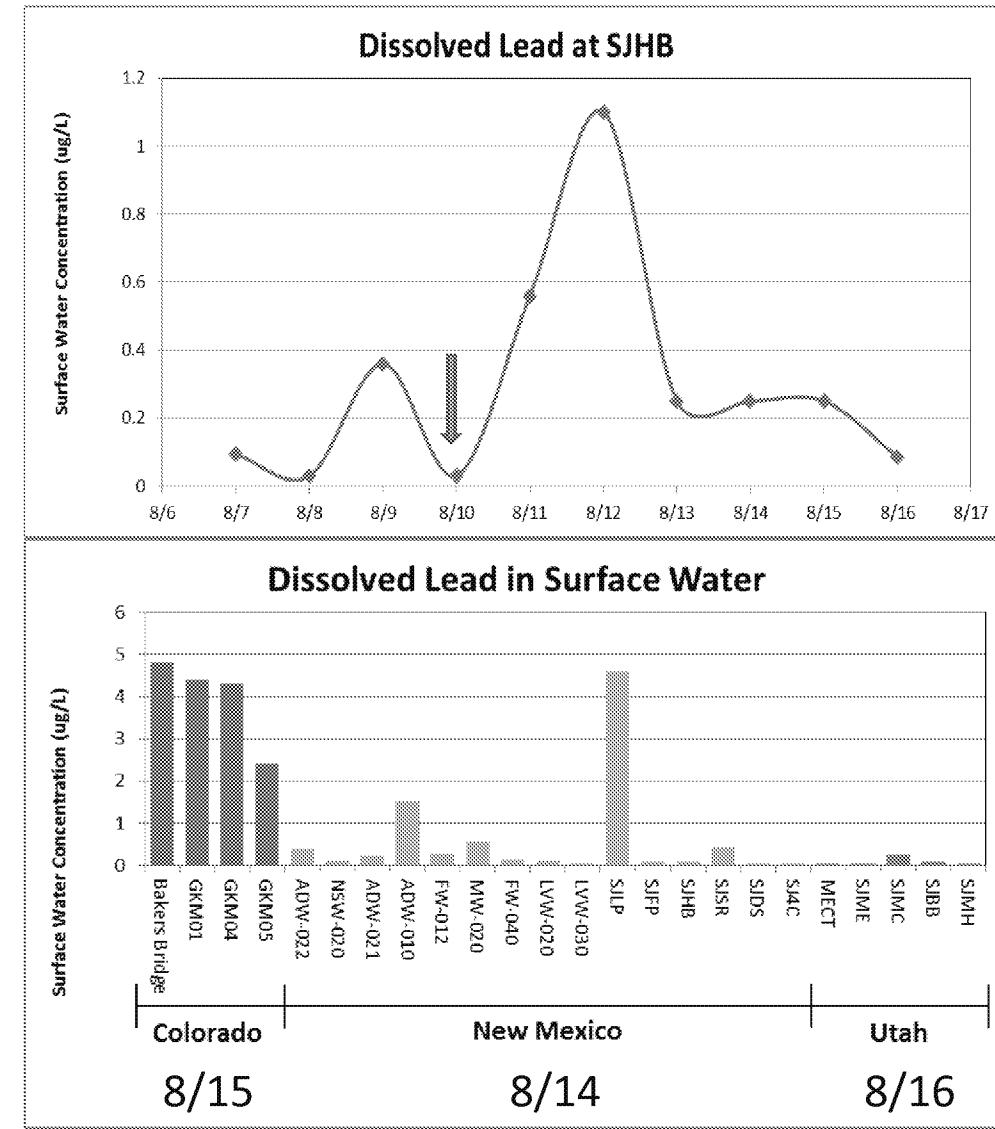
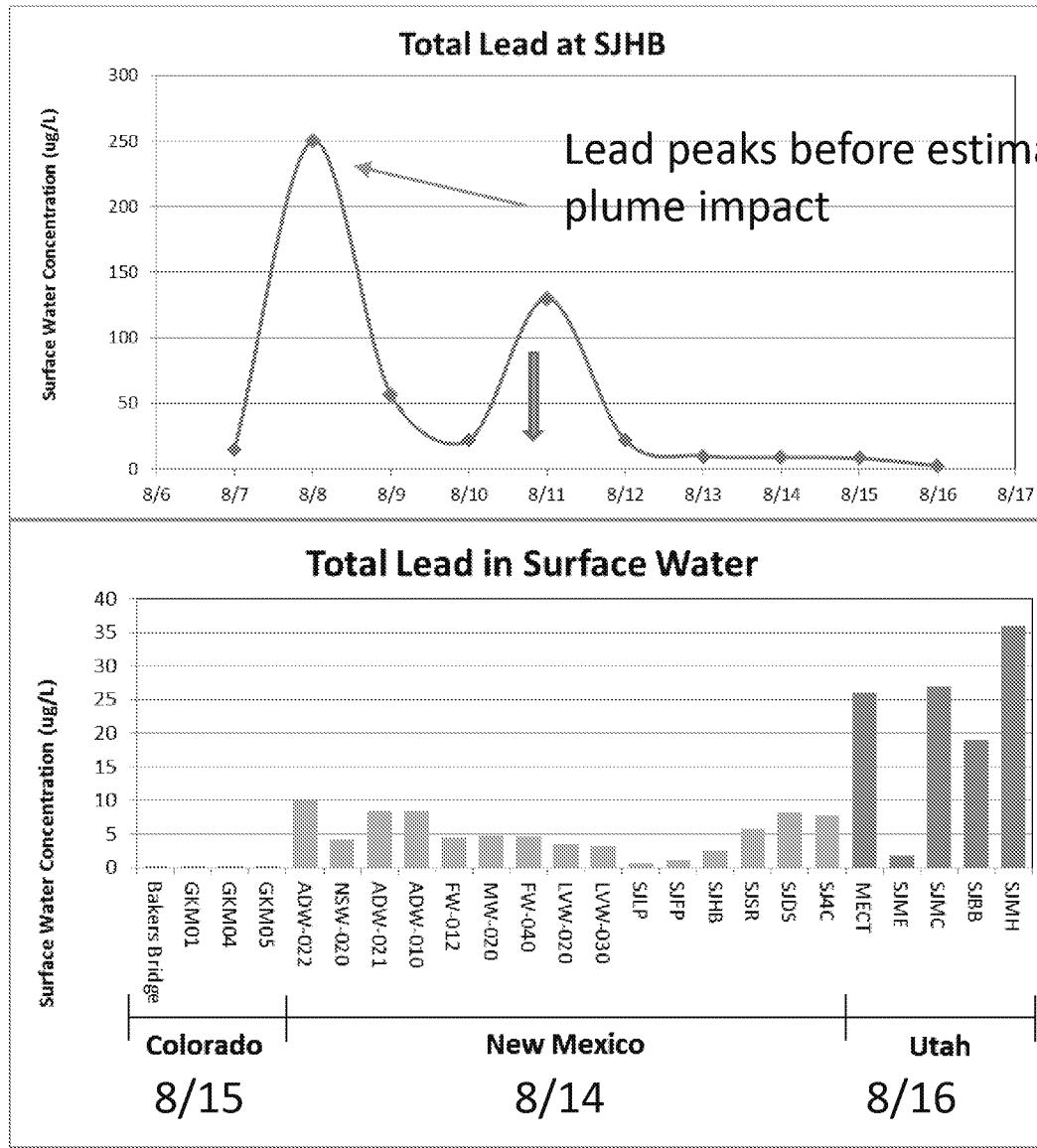
Total Pb peaks between 8/9 & 8/11
Total As peaks at this location between 8/10 & 8/13
Levels remain comparable to 8/15 & 16 on 8/17 & 18
for arsenic (2.1 – 5 ug/l) and lead (5.9 – 7.2 ug/l)



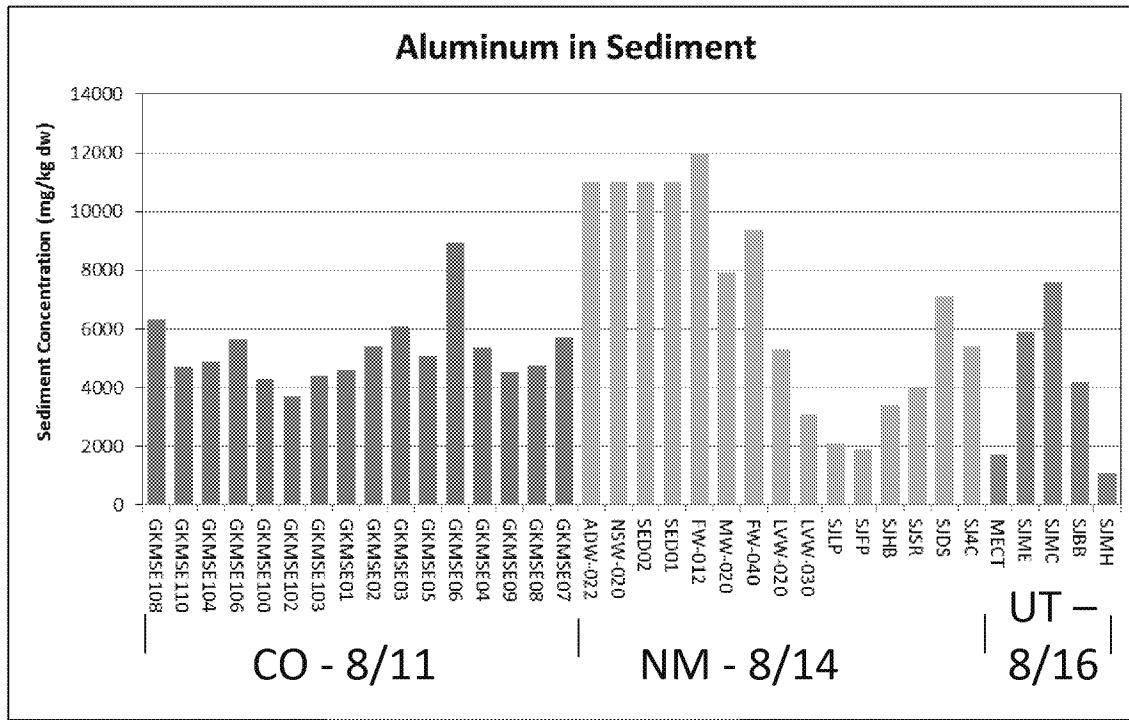
Total Lead at LP – near confluence w Animas



Lead at upstream stations



Lead & Al in sediment



All sediment results in SJR below RSLs
Al sediment results comparable
Lead results much lower in SJR than in the
Animas River

